

IB computer Lab April 19th Room 119 (posted at: <http://physics-pages.wikispaces.com/>)

Name _____ Block _____

Play with the following sims and write a description of the relationships you can derive:

<http://phet.colorado.edu/en/simulation/blackbody-spectrum>

Determine the wavelength with max intensity for solar temperature, 5800 K and Earth 288 K.

<http://phet.colorado.edu/en/simulation/microwaves>

Describe the motion of water molecules in a microwave – distinguish rotation and translation.

<http://phet.colorado.edu/en/simulation/greenhouse>

What is the equilibrium temperature for different setups?

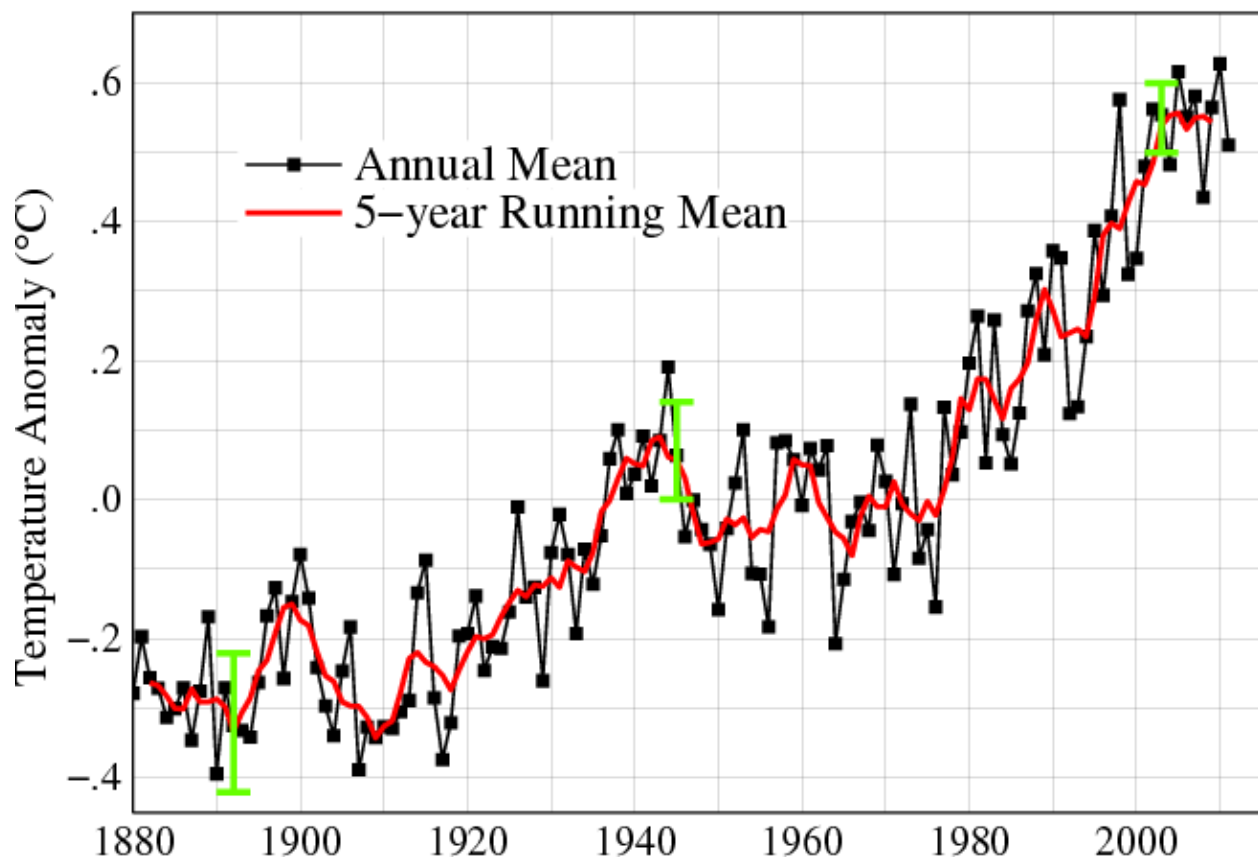
Why is there more infrared radiation up than down?

Click on photon absorption. Make an atmosphere of Nitrogen and Oxygen. Observe. Now make one of Methane, carbon dioxide and water. Observe

Continue on back

Look at the data displayed at: http://data.giss.nasa.gov/gistemp/graphs_v3/

Global Land–Ocean Temperature Index



1. What is “temperature anomaly?”
2. What is the slope of a linear best-fit gradient with uncertainties from max/min lines?
3. Climate change deniers used the data from 1998 and 2008 to show climate change is a crock. How would you respond?
4. What actions could alter this trend? Should these actions be taken?

Circuits:

<https://phet.colorado.edu/en/simulation/legacy/circuit-construction-kit-ac-virtual-lab>

Make circuits with resistors, light bulbs, batteries or AC power, wires, voltmeter, ammeter – HIs add capacitors.

Compare voltage, current, brightness of the bulbs for various combinations. What do you notice?

(note, to change the circuit you have to right click and remove elements)

Capacitor Lab:

<https://phet.colorado.edu/en/simulation/legacy/capacitor-lab>

What happens to the voltage, capacitance, energy stored, charge on a capacitor when you insert a dielectric,

- a) When connected to a battery with 1.0V?
- b) When the battery is subsequently disconnected?

Diode Lab:

<https://phet.colorado.edu/en/simulation/legacy/semiconductor>

What happens if you have it set to one material?

When you set it to 2 materials,

put n-type doping on the left and p-type on the right.

What is the forward bias of this diode?

Choose another simulation and play.

Simulation:

Observations:

Conclusions: